

Preliminary Summary Report on Incidental- and By-Catches in the Southern Region from Taiwanese Observer Data of 2002-2004

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Introduction

Longline fishery is one of the most important deep seas fisheries of Taiwan and operates all over the three oceans including the south bluefin tuna (SBT) fishing grounds in the high latitude waters in the South hemisphere (south of 25°S, referred as southern regions in the following text). To collect scientific data on major target species and ERS species, an observer program has been launched since 2002. There were 14 observing trips in the southern regions of the three oceans during 2002-2004. This report provides summary information on the incidental- and by-catch species from these observing trips. Due to low observer coverage, it is reminded that these information need to be used with caution.

Data

The observers collected data including the following categories: (1) vessel's information such as size and equipments; (2) environmental information; (3) operation and effort information such as buoyline length, branch line length, number of baskets, setting time, setting direction, number of hooks, number of hooks per basket. (4) catch information such as catch in number, in weight and discards for all species (tuna and tuna-like species, sharks by major species); (5) length measurements for first 30 fish per set regardless of species; and (6) incidental catch information, etc.

The observer logbook format has been changed in 2004 to require more information from the observing trip especially on the incidental catch species. Sea birds information was recorded by species since the new logbook was adopted.

The observers also collected biological samples from tuna and tuna-like species, and other ERS species such as sharks, seabirds, and sea turtles for various research projects. Stomach contents from SBT and albacore were also collected since 2004. Only data from observers' logsheets are covered in this report. Information on biological samples or research results will be reported in other circumstances.

Results and Discussions

Location and efforts

The number of trips, observed days and total efforts (numbers of hooks) of observed vessels operated in the southern regions during 2002-2004 were summarized in the Table 1. During 2002-2004, 13 observed trips were carried out in the southern regions of the Atlantic Ocean and the Indian Ocean. Only one trip was observed in the southern region of the Pacific Ocean in 2003. The average efforts of observed vessels were similar in three oceans and they were about 3,300-4,200 hooks per day.

Figure 1 shows the efforts distribution for all observed trips during 2002-2004. In 2002, the efforts in the Atlantic Ocean distributed in the western area (45°W-0°), and

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the efforts in the Indian Ocean concentrated in the central area (80°E-90°E). During 2003-2004, the distributions of efforts in Atlantic Ocean and Indian Ocean were very similar, the efforts concentrated in the eastern Atlantic Ocean (0°-15°E) and central and western Indian Ocean (50°E-90°E).

Catch composition

Table 2 shows the annual catch compositions of main catches, including numbers and percentages of catches. Generally, the most important target species caught in the southern regions of three oceans was tunas, which were more than 90% of total catches in general, except 2004 in the Indian Ocean when un-regular high catch of oilfish was noted. Billfishes, sharks, seabirds, and other fish were rarely taken in the southern regions.

Figure 2-a shows the catch compositions of tunas and billfishes for three oceans during 2002-2004. Albacore composed most in the catches. Figure 2-b shows the catch compositions of sharks for three oceans during 2002-2004. Blue shark catch was noted most in the southern regions of Atlantic and Indian Oceans. Shortfin mako was the most shark catch during the trip in the Pacific Ocean.

Incidental-catches

There were no incidental take of sea turtle in the southern region, nor whales and dolphins. The most incidental catch of ERS was sea birds. Table 3 listed the numbers of incidental catches of sea birds during the observation period of 2002-2004.

Figure 3 shows the distributions of incidental catches of sea birds for all observed trips during 2002-2004. Most seabirds were caught at the area of 30°S-40°S. The catch rates of sea birds caught by observed vessels were also listed in the Table 4. In general, the catch rates were around 0.02-0.06 individual per 1000 hooks, depending on the fishing location and year. The main species of seabirds caught in longline fisheries was albatrosses which occupied more than 70% of total catch of seabirds. Overall, about 20-50% seabirds were alive and released when they were caught, with exception of the case in the Pacific Ocean; the rest were dead and discarded with some kept beak samples (Table 4). The record of live status of sea birds taken in the 2003 trip of Atlantic Ocean lost and therefore noted as unknown in the table.

By-catches

Table 3 also shows the numbers of sharks caught by observed vessels operated in the southern regions of three oceans during 2002-2004. In 2002 and 2003, the shark catch rate in the Atlantic Ocean was much higher than in the other two Oceans. In 2004, however, the catch rate in the Atlantic Ocean has reduced significantly comparing to the previous years. This was mostly due to the change of material of longline gear. Except the first observing year in 2002, the catch rates of 2003-04 was in general around 0.1-0.4 fish per 1000 hooks.

Figure 4 shows the distributions of sharks caught by observed vessels operated in the southern regions of three oceans during 2002-2004. The distributions of the catches of sharks approximately consisted with the distribution of efforts. There were no obvious patterns that sharks were caught in the specific area for all oceans.

Table 1. Number of trips, observed days and total efforts (numbers of hooks) of observed vessels operated in the southern regions during 2002-2004.

Year	Ocean	No. trip	Total effort	Observed days
2002	ALT	1	237,240	69
	IND	1	425,160	126
2003	ALT	1	663,820	169
	IND	2	271,270	81
	PAC	1	353,290	84
2004	ALT	4	1,033,901	255
	IND	4	895,542	246

Table 2. Catch in number and catch composition by main species caught during observer trips operated in the southern regions of three oceans during 2002-2004.

Year	Ocean	Tunas and Skipjack		Billfishes		Sharks		Other fishes		Sea birds	
		Num	%	Num	%	Num	%	Num	%	Num	%
2002	ALT	7003	96.08	72	0.99	151	2.07	62	0.85	1	0.01
	IND	6088	92.44	61	0.93	12	0.18	418	6.35	7	0.11
2003	ALT	15843	93.91	40	0.24	283	1.68	672	3.98	32	0.19
	IND	3452	91.08	53	1.40	58	1.53	223	5.88	4	0.11
	PAC	9311	94.31	83	0.84	38	0.38	427	4.32	14	0.14
2004	ALT	47679	99.13	90	0.19	102	0.21	164	0.34	64	0.13
	IND	7310	81.37	169	1.88	150	1.67	1327	14.77	28	0.31

Table 3. Incidental catch in number and catch rate (numbers per 1000 hooks) of sea birds and by-catches of sharks caught by observed trips in the southern regions of three oceans during 2002-2004.

Year	Ocean	Sea bird		Shark	
		Number	Catch rate	Number	Catch rate
2002	ALT	1	0.0042	151	0.6365
	IND	7	0.0165	12	0.0282
2003	ALT	32	0.0482	283	0.4263
	IND	4	0.0147	58	0.2138
	PAC	14	0.0396	38	0.1076
2004	ALT	64	0.0619	102	0.0987
	IND	28	0.0313	150	0.1675

Table 4. The life status of caught sea birds during the observed trips in the southern regions of three oceans during 2002-2004.

Year	Ocean	Number	Alive and released %	Dead (dead and cutting beaks) %	Live status unknown %
2002	ALT	1	0.0	100.0 (100.0)	0.00
	IND	7	42.9	57.1 (57.1)	0.00
2003	ALT	32	0.0	6.3 (6.3)	93.8
	IND	4	50.0	50.0 (50.0)	0.00
	PAC	14	7.1	92.9 (78.7)	0.00
2004	ALT	64	20.3	79.7 (34.4)	0.00
	IND	28	53.6	46.4 (46.4)	0.00
Total		150			

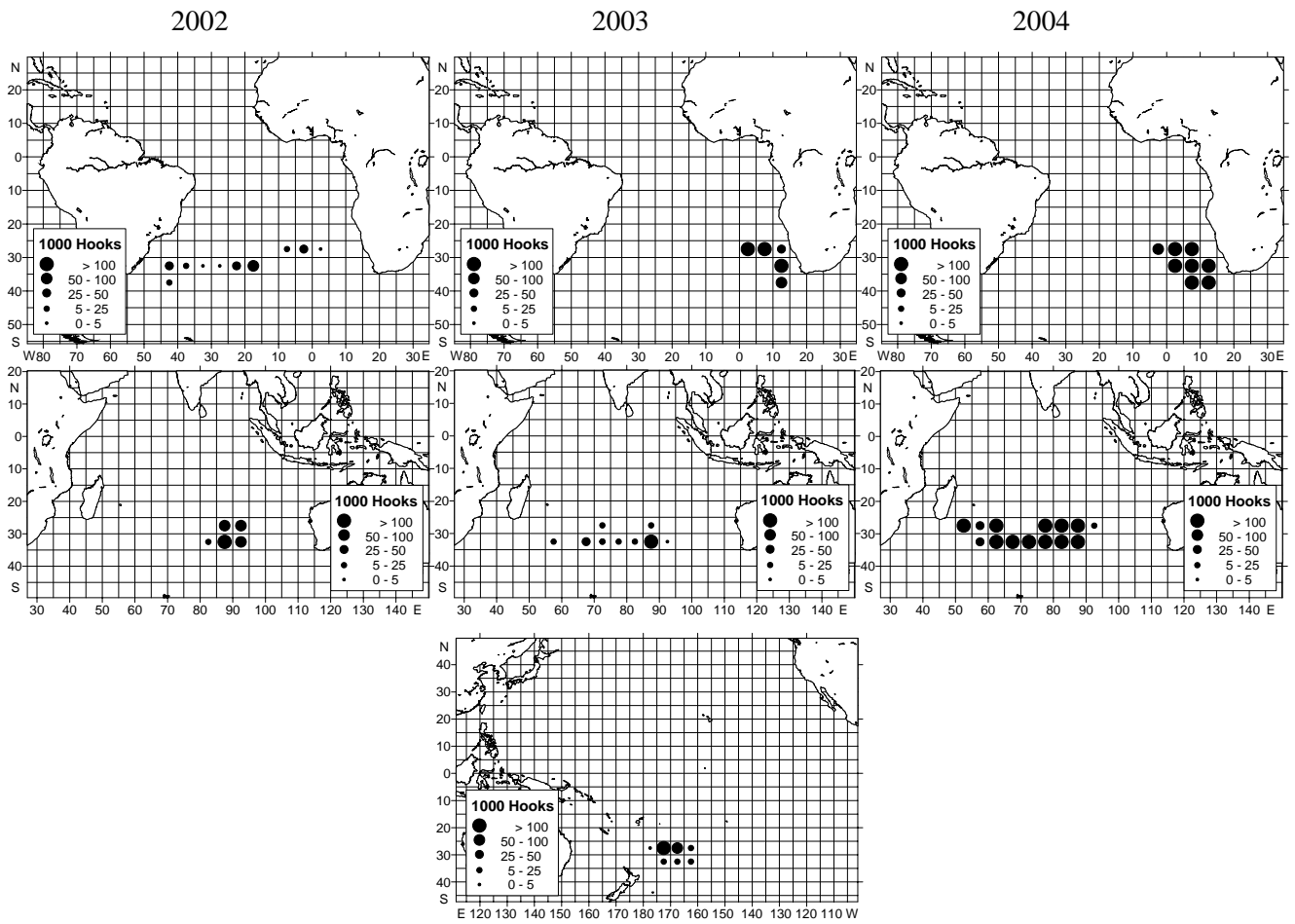


Figure 1. The effort distribution of the 14 observed trips operated in the southern regions of three Oceans during 2002-2004.

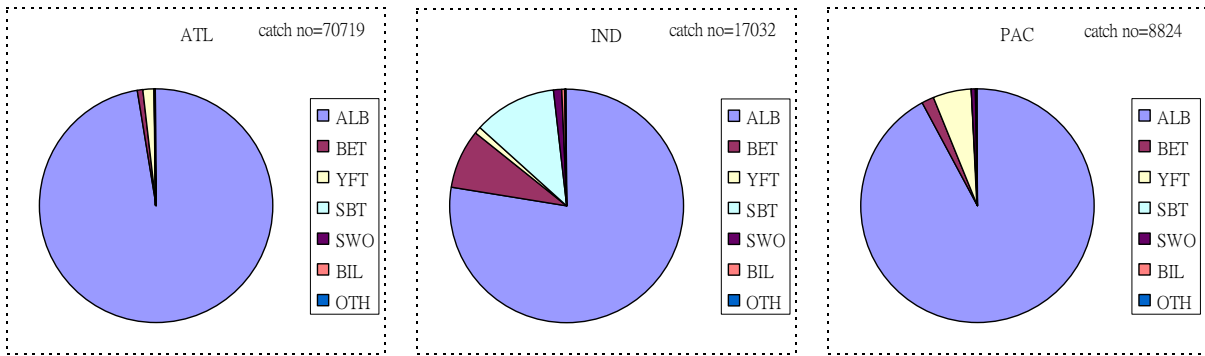


Figure 2-a. The catches compositions of tuna and billfish caught by observed trips operated in the southern regions of three oceans during 2002-2004.

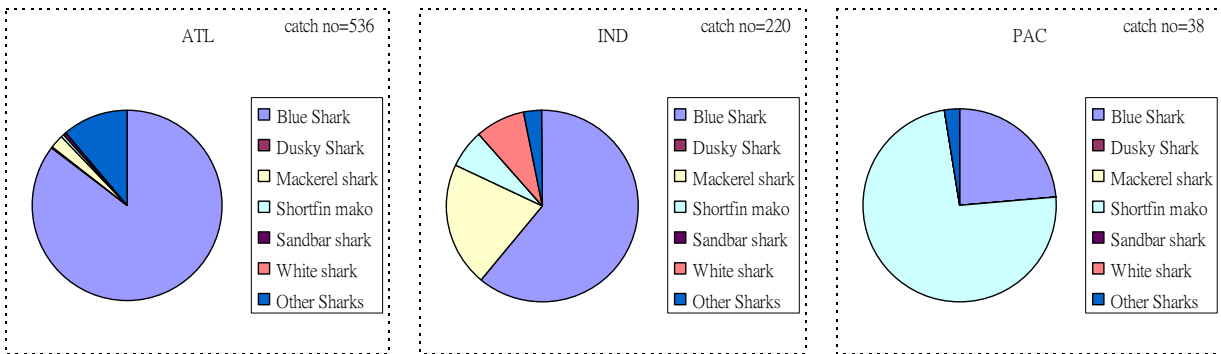


Figure 2-b. The catches compositions of sharks caught by observed trips operated in the southern regions of three oceans during 2002-2004.

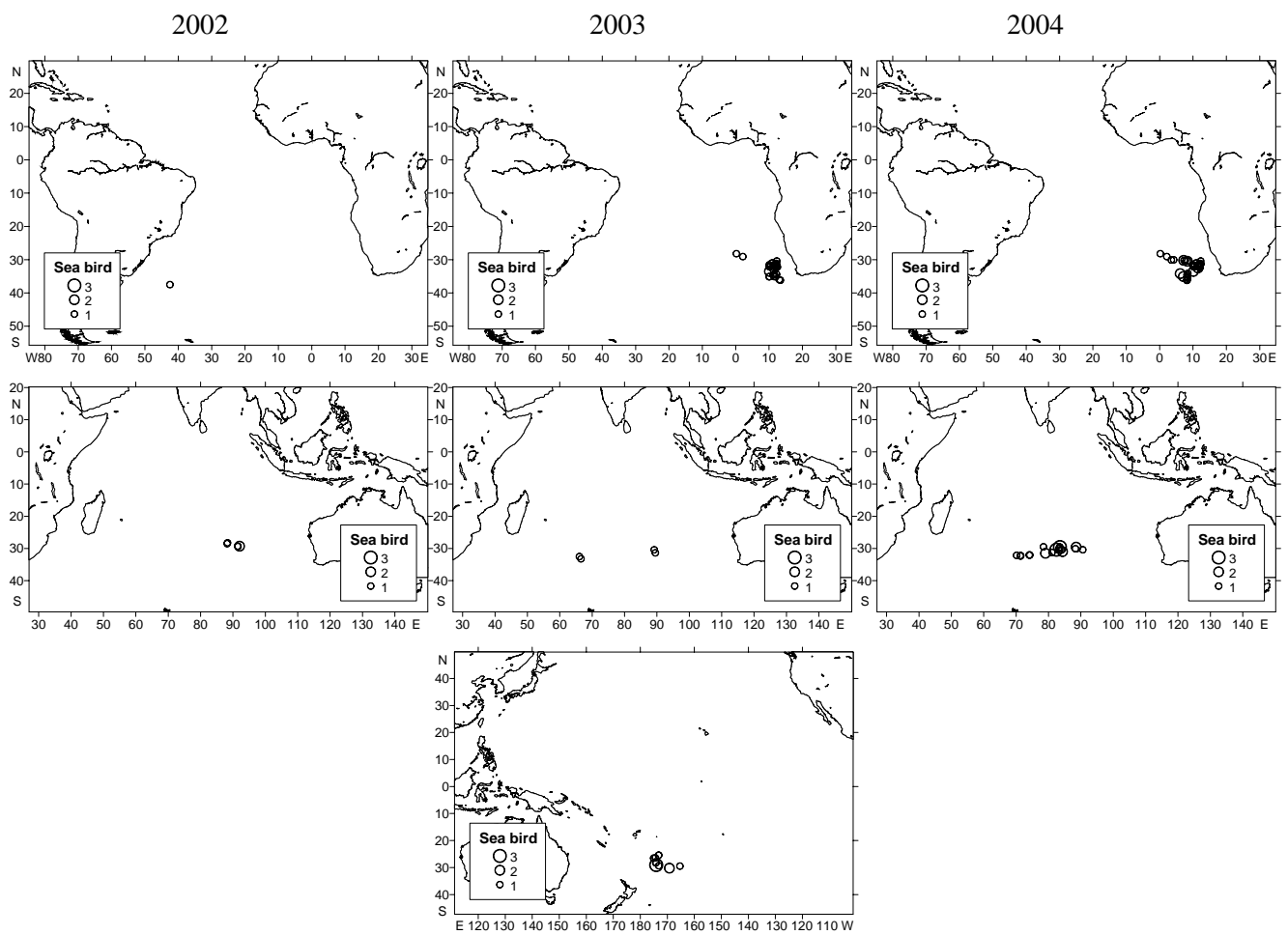


Figure 3. Distribution of incidental catches of sea birds caught during the observing trips in the southern regions of three oceans during 2002-2004.

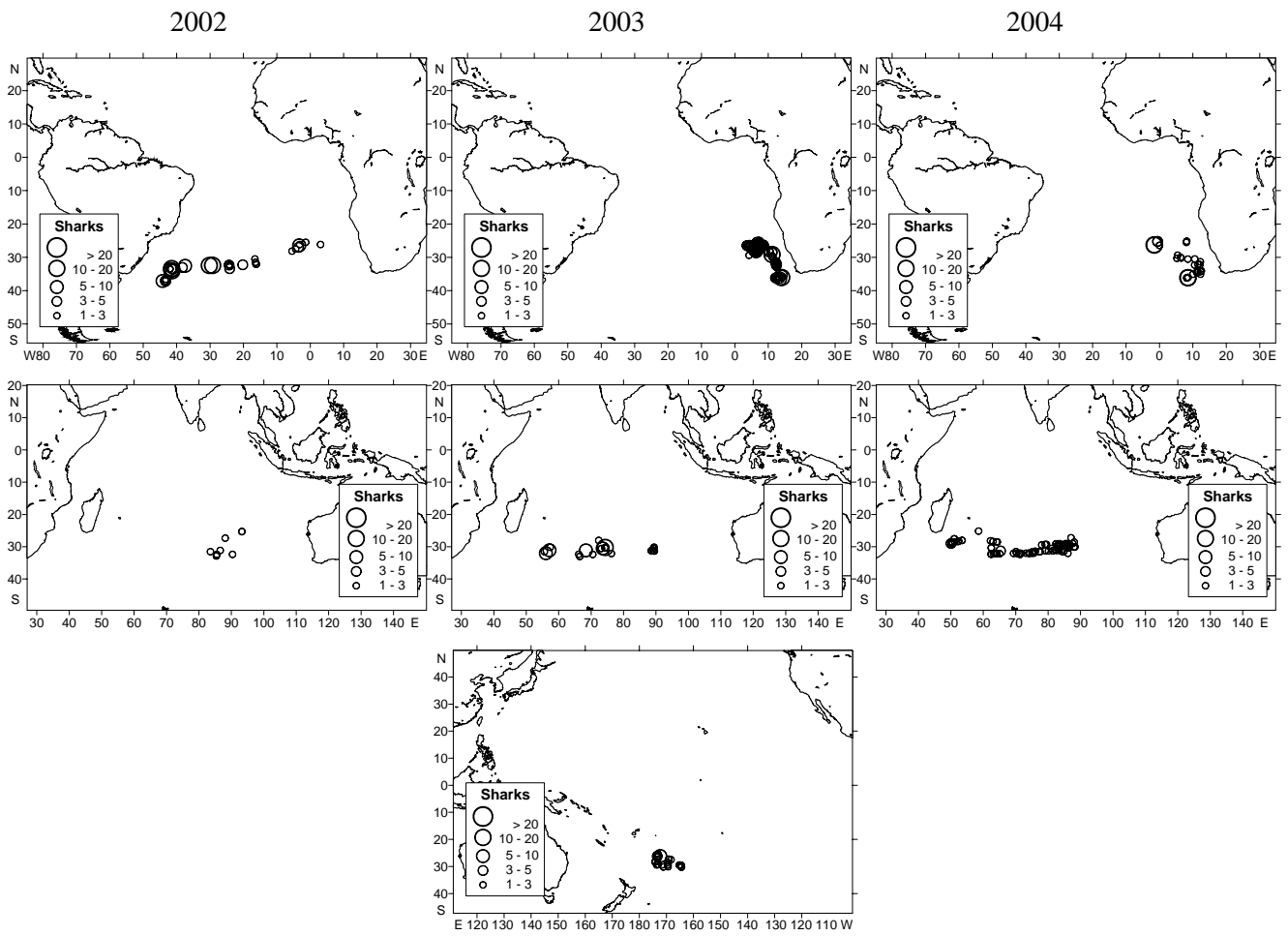


Figure 4. The distribution of catches of sharks caught by observed trips operated in the southern regions of three oceans during 2002-2004.

